

REMARKS

Claims 1-3, 5, 9, and 10 have been amended. Claim 4 has been cancelled. Thus, claims 1-3 and 5-10 are now pending in the present application. Support for the amendments can be found at least at ¶¶ [0069] and [0089] of the specification. No new matter has been added. Applicants respectfully submit that all presently pending claims are in condition for allowance.

Claims 1, 3-4, and 7 stand rejected under 35 U.S.C. § 102(b) for being anticipated by Herbold et al. (U.S. Published Appln. No. 2004/0003646) (“Herbold”).

Claim 1 has been amended to recite “[a] torque meter, comprising: an elastic member arranged in a power transmission channel and deforming in response to a torque to be measured; a torque detection arrangement detecting the torque based on deformation of the elastic member; a torque member receiving the torque applied to the elastic member; and a load member arranged separate from the torque member, the load member supporting a load of the elastic member, wherein the torque member and the load member are thin parts formed of the elastic member, wherein a thin part serving as a torque member is arranged such that an in-plane direction of the thin part is parallel to a direction of the torque, wherein a thin part serving as a load member is arranged such that a direction of a thickness of the thin part is parallel to the direction of the torque, and *wherein the torque detection arrangement is mounted to each of the torque member and the load member.*”

In contrast, Herbold discloses that “measuring elements 26 for torque measurement in the form of strain gauges are affixed to the first type webs 18.” (See Herbold, ¶ [0021]). Herbold discloses that the first type webs 18 are flat plates which lie in a plane normal to the axis of the torque sensor. (*Id.*, ¶ [0019]). Herbold fails to disclose that measuring elements 26 are also affixed to second type webs 16. Therefore, it is respectfully submitted that Herbold fails to meet the limitation of “*the torque detection arrangement is mounted to each of the torque member and the load member*” as recited in claim 1 and that claim 1 is allowable.

Claim 3 recites “[a] torque meter, comprising: an elastic member arranged in a power transmission channel and deforming in a response to a torque to be measured, wherein the elastic member is cylindrical and includes a pair of disks; a torque detection arrangement detecting the torque based on deformation of the elastic member; a torque member that connects the pair of disks and receives the torque applied to the elastic member; and a load member that is arranged separate from the torque member to connect the pair of disks, the load member supporting a load of the elastic member; *wherein the torque member is a thin part that is a section of a cylinder arranged in a circular-arc direction*, and wherein the load member is a thin part arranged in a radial direction.”

The Examiner states that Herbold discloses a torque member being arranged in a circular-arc direction. However, Herbold discloses that four first type webs 18 “are angularly spaced by 90° about a central axis 19 and form a first cross of webs.” (*See* Herbold, ¶[0022]). Herbold fails to disclose that first type webs 18 are thin parts that are sections of a cylinder arranged in a circular-arc direction, as recited in claim 3. Therefore, it is respectfully submitted that claim 3 and its dependent claim 7 are allowable over Herbold.

Claims 2, 6, and 8 stand rejected under 35 U.S.C. § 103(a) for being obvious with respect to Herbold in view of Hachtel et al. (U.S. Patent No. 4,356,732) (“Hachtel”).

Claim 2 recites “[a] torque meter, comprising: an elastic member arranged in a power transmission channel and deforming in response to a torque to be measured; a torque detection arrangement detecting the torque based on deformation of the elastic member; a torque member receiving the torque applied to the elastic member; and a load member arranged separate from the torque member, the load member supporting a load of the elastic member; wherein the elastic member is a torsion bar, *wherein the torque member is shaped as a shaft axially extending in a central portion of the torsion bar, wherein the shaft has a diameter smaller than that of the torsion bar, and wherein the load member is a thin part formed around the torque member in a radial direction thereof and arranged such that an out-of-plane direction of the thin part lies in a*

direction of a torsional moment.”

Applicants respectfully submit that Herbold fails to teach a torque member shaped as a shaft that extends axially in a central portion of a torsion bar. Herbold discloses that first type webs 18 are flat plates and that they are angularly spaced by 90° about a central axis. (*Id.*, ¶¶ [0019]-[0021]). Since Herbold fails to disclose the torque member being a centrally located shaft, then it would be impossible for load members to be formed around the torque member. Herbold discloses that first type webs 18 and second type webs 16 are “mutually offset angularly by 45°.” (*Id.*, ¶ [0026]). Therefore, it is respectfully submitted that Herbold fails to meet the limitations of claim 2.

It is respectfully submitted that Hachtel fails to cure the above mentioned deficiencies of Herbold and that Herbold and Hachtel, taken alone or in any combination, fail to teach “*the torque member is shaped as a shaft axially extending in a central portion of the torsion bar, wherein the shaft has a diameter smaller than that of the torsion bar, and wherein the load member is a thin part formed around the torque member in a radial direction thereof and arranged such that an out-of-plane direction of the thin part lies in a direction of a torsional moment*” as recited in claim 2 and that claim 2 is therefore allowable. Because claims 6 and 8 depend on and therefore contain the limitations of claim 2, it is respectfully submitted that these claims are also allowable.

Claims 5, 9, and 10 stand rejected under 35 U.S.C. § 103(a) for being obvious with respect to Herbold.

As previously stated, Herbold fails to meet the limitations of claim 1 and claim 3. Therefore, it is respectfully submitted that, because claims 5 and 10 depend on claim 1 and claim 9 depends on claim 3, these claims are also allowable.

In light of the foregoing, Applicants respectfully submit that all of the presently pending claims are in condition for allowance. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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